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Evolution of Enterprise Program Management

Program Management Methodologies and Practices in the Aegis Program Office and Its Impact on Systems Engineering, Naval Surface Warfare Center, Dahlgren Division (NSWCDD), Dahlgren, VA

A Case Study

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In a complex systems engineering environment, how do you maximize true technical work without compromising proper program management?

Agenda

- Background
- Early Management Challenges
- Management Requirements
- Program Management Improvemer
  Process Solutions
- Dividends
- Keys to Success
- Lessons Learned

Background - Aegis Program Office

- Established at NSWCDD in 1981
- Develops, tests, deploys, maintains computer programs and interfaces for Aegis combat/weapon systems on Navy
- destroyers
- $150M+ project funding
- 700+ government/contractor employees
- Organized by functional areas and system components
- Program Office has matrix responsibility for managing projects as directed and funded by warfare sponsors

Early Management Challenges

- **<u>What</u> work was being done?**
- **<u>Who</u> was doing the work?**
- **<u>How much</u> did it cost to do the work?**
- **<u>How do you measure</u> improvements and efficiencies?**

AT AN ENTERPRISE LEVEL

Management Requirements

- **Characterize the work.**
- **Identify opportunities to improve efficiency, effectiveness, and quality.**
- **Create ability to measure efficiencies as they occur in the work.**
- **Do all of this without compromising the mission.**

Program Management Improvement Process (PMIP) Solutions

1986

Integrated Business Planning and Execution System (IBPES)

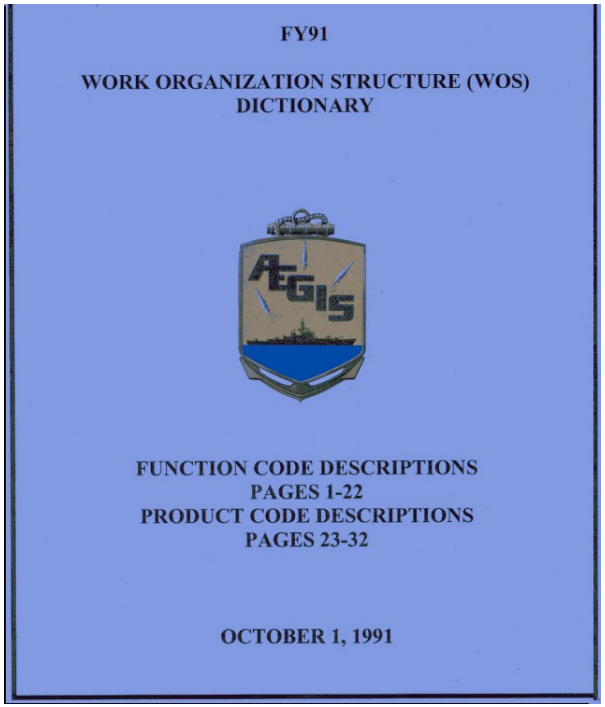
- Budgets, tracks money, contracts, and in-house hours charged.
- Integrated existing data.
- Provided basic understanding of program cash flow and budget execution.

PMIP Solutions

1991

Work Organization Structure (WOS)

- Three-dimensional classification scheme that characterized the three facets of Aegis work: functions, products, and baselines.



PMIP Solutions (con’d)

1992

Aegis Resource Management System (ARMS)

- Tracking tool that collec
  government and cont
  hours weekly
- “Real time” collected fo
  the first time

PMIP Solutions (con'd)

1992-1998

Software Engineering Process Group

- Internally established protocols for software development at NSWCDD
- Based on Software Engineering Institute's (SEI) methodology
- SEI Capability Maturity Model adopted in 1992
- 1994-1998 – improvements are

PMIP Solutions (con'd)

1994-1995

Multi-Project Scheduling

- First attempt to implement an enterprise scheduling tool *not* successful
  - Technical limitations of tool
  - Management "culture shock"

Provided precursory look at what was to come, culturally.

New Challenges

- Decreased funding
- Increased sponsor/management oversight
- Increasing complexity and number of computer programs
- Proliferation of “home grown” management tools at lowest organizational levels
- Decentralized workforce and outsourcing pressures

PMIP Solutions (con'd)

1999

Primavera TeamPlay Implementation

- Implemented "best of class" scheduling application with enterprise-wide applicability
- Selected as best tool to answer increasing demands for more info i.e. what, who, how much, and when
- Programs within SSPO dictating that EVM be applied

PMIP Solutions (con’d)

1999

Data Mart Implementation

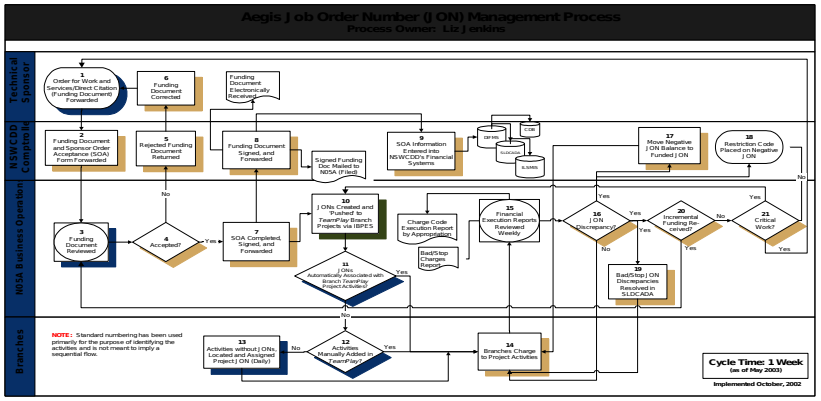
- **Implemented as complement to TeamPlay**
- **SSPO’s centralized source of business information and data analysis**
- **Business info accessible from desktop**
- **Data Mart info to support or influence SSPO decision-making**

PMIP Solutions (con’d)

2001 - current

Business Process Reengineering (BPR)

- **PMIP solutions have forced continuous improvement in planning, budgeting and executing processes**
- **Reengineering and “Quick Strike” efforts have enhanced organizational and CMM objectives**


Aegis Job Order Number (JON) Management Process
Process Owner: Liz Jenkins
Technical Sponsor
NSWCDD Comptroller
NSA Business Operation
Branches
Order for Work and Services/Direct Citation (Funding Document) Forwarded
Funding Document and Sponsor Order Acceptance (SOA) Form Forwarded
Funding Document Corrected
Rejected Funding Document Returned
Funding Document Electronically Received
Funding Document Signed, and Forwarded
Signed Funding Doc. Mailed to NSA if Hard
SOA Information Entered into NSWCDD's Financial Systems
Move Negative JON Balance to Funded JON
Restriction Code Placed on Negative JON
Funding Document Reviewed
Accepted?
SOA Completed, Signed, and Forwarded
JONs Created and "Pushed" to TeamPlay Branch Projects via ISPES
JONs Automatically Associated with Branch TeamPlay Project Activities
Charge Code Execution Report by Appropriation
Bad/Stop Charges Report
Financial Execution Reports Reviewed Weekly
JON Discrepancy?
Incremental Funding Received?
Critical Work?
Bad/Stop JON Discrepancies Resolved in SLDCADA
Activities without JONs Created and Assigned Project JON (Daily)
Activities Manually Added in TeamPlay?
Branches Charge to Project Activities
NOTE: Standard numbering has been used primarily for the purpose of identifying the activities and is not meant to imply a sequential flow.
Cycle Time: 1 Week
(as of May 2003)
Implemented October, 2002

Dividends

- Everyone on the “same page” (common servers, applications, and methodologies)
- Work is characterized
- Using a standard methodology for majority of projects - repeatable
- Employees using tool to capture hours to project
- Starting to use EVM and other metrics
- SSPO in forefront for accountability, planning, budgeting, and execution of projects
- Understanding current processes directly lead to improved ones

Capabilities increased – Administration decreased

Keys to Success

- **Senior level buy-in and leadership from the beginning (1986)**
- **Stakeholders consistently represented**
- **Process-driven customized training**
- **Customized user documentation**
- **Fully developed proof of concept that anticipated problems**
- **Implemented incrementally – “build a little, test a little, learn a lot” - learned from successes and failures**

Lessons Learned

- **Spend time on processes up front – don't force a bad process onto a new tool**
- **Ensure users have basic PM training they need to succeed**
- **Document, document, document**
- **Difficult to take advantage of all functionality at once – raise the bar later**

Expect everything to take longer than expected.

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Questions?